RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: _____ 10/581, 041

Source: _____ IFWP

Date Processed by STIC: _____ 06/21/2006

ENTERED

CRF Errors Edited by the STIC Systems Branch

Serial Number: _10/581, 041_   CRF Edit Date: _06/21/2006_
Edited by: _DA_

____ Realigned nucleic acid/amino acid numbers/text in cases where the sequence text "wrapped" to the next line

____ Corrected the SEQ ID NO. Sequence numbers edited were:

_____

____ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:

_____

__/__ Deleted: ___ invalid beginning/end-of-file text ; ___ page numbers

____ Inserted mandatory headings/numeric identifiers, specifically:

_____

____ Moved responses to same line as heading/numeric identifier, specifically:

_____

____ Other:

_____
_____
_____

Revised 09/09/2003

IFWP

RAW SEQUENCE LISTING   DATE: 06/21/2006
PATENT APPLICATION: US/10/581,041   TIME: 13:40:09

Input Set : **A:\pto.da.txt**
Output Set: **N:\CRF4\06212006\J581041.raw**

```
   4 <110> APPLICANT: CHAE, Young-Jin
   5         CHOI, Eun-Wha
   7 <120> TITLE OF INVENTION: Recombinant peptide vector comprising the gene for treatment
for
   8         autoimmune diseases
  10 <130> FILE REFERENCE: OP04-1086
C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/581,041
C--> 12 <141> CURRENT FILING DATE: 2006-05-30
  12 <160> NUMBER OF SEQ ID NOS: 23
  14 <170> SOFTWARE: KopatentIn 1.71
  16 <210> SEQ ID NO: 1
  17 <211> LENGTH: 20
  18 <212> TYPE: DNA
  19 <213> ORGANISM: Artificial Sequence
  21 <220> FEATURE:
  22 <223> OTHER INFORMATION: primer
  25 <400> SEQUENCE: 1
  26 aagacctgaa cactgctcca                                          20
  29 <210> SEQ ID NO: 2
  30 <211> LENGTH: 20
  31 <212> TYPE: DNA
  32 <213> ORGANISM: Artificial Sequence
  34 <220> FEATURE:
  35 <223> OTHER INFORMATION: primer
  38 <400> SEQUENCE: 2
  39 ttgaaattgc ctcagctcct                                          20
  42 <210> SEQ ID NO: 3
  43 <211> LENGTH: 20
  44 <212> TYPE: DNA
  45 <213> ORGANISM: Artificial Sequence
  47 <220> FEATURE:
  48 <223> OTHER INFORMATION: primer
  51 <400> SEQUENCE: 3
  52 gataacagtc atccgtgtca                                          20
  55 <210> SEQ ID NO: 4
  56 <211> LENGTH: 20
  57 <212> TYPE: DNA
  58 <213> ORGANISM: Artificial Sequence
  60 <220> FEATURE:
  61 <223> OTHER INFORMATION: primer
  64 <400> SEQUENCE: 4
  65 gtagcagatg ccgtccacct                                          20
  68 <210> SEQ ID NO: 5
  69 <211> LENGTH: 66
```

RAW SEQUENCE LISTING   DATE: 06/21/2006
PATENT APPLICATION: US/10/581,041   TIME: 13:40:09

Input Set : A:\pto.da.txt
Output Set: N:\CRF4\06212006\J581041.raw

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71 <213> ORGANISM: Artificial Sequence
73 <220> FEATURE:
74 <223> OTHER INFORMATION: primer
77 <400> SEQUENCE: 5
78 ctcagtctgg tccttgcact cctgtttcca agcatggcga gcatgtccaa agggatgcat        60
80 gtggct                                                                    66
83 <210> SEQ ID NO: 6
84 <211> LENGTH: 27
85 <212> TYPE: DNA
86 <213> ORGANISM: Artificial Sequence
88 <220> FEATURE:
89 <223> OTHER INFORMATION: primer
92 <400> SEQUENCE: 6
93 gaattcgtca gaatctgggc aaggttc                                             27
96 <210> SEQ ID NO: 7
97 <211> LENGTH: 61
98 <212> TYPE: DNA
99 <213> ORGANISM: Artificial Sequence
101 <220> FEATURE:
102 <223> OTHER INFORMATION: primer
105 <400> SEQUENCE: 7
106 aagcttcacc atgggtgtac tgctcacaca gaggacgctg ctcagtctgg tccttgcact        60
108 c                                                                        61
111 <210> SEQ ID NO: 8
112 <211> LENGTH: 27
113 <212> TYPE: DNA
114 <213> ORGANISM: Artificial Sequence
116 <220> FEATURE:
117 <223> OTHER INFORMATION: primer
120 <400> SEQUENCE: 8
121 gaattcgata acagtcatcc gtctcat                                            27
124 <210> SEQ ID NO: 9
125 <211> LENGTH: 24
126 <212> TYPE: DNA
127 <213> ORGANISM: Artificial Sequence
129 <220> FEATURE:
130 <223> OTHER INFORMATION: primer
133 <400> SEQUENCE: 9
134 tctagagtag cagatgccgt ccac                                               24
137 <210> SEQ ID NO: 10
138 <211> LENGTH: 21
139 <212> TYPE: DNA
140 <213> ORGANISM: Artificial Sequence
142 <220> FEATURE:
143 <223> OTHER INFORMATION: primer
146 <400> SEQUENCE: 10
147 gccagatata cgcgttgaca t                                                  21
150 <210> SEQ ID NO: 11
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RAW SEQUENCE LISTING   DATE: 06/21/2006
PATENT APPLICATION: US/10/581,041   TIME: 13:40:09

Input Set : A:\pto.da.txt
Output Set: N:\CRF4\06212006\J581041.raw

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152 <212> TYPE: DNA
153 <213> ORGANISM: Artificial Sequence
155 <220> FEATURE:
156 <223> OTHER INFORMATION: primer
159 <400> SEQUENCE: 11
160 gcttaatgcg ccgctaca                                                  18
163 <210> SEQ ID NO: 12
164 <211> LENGTH: 2213
165 <212> TYPE: DNA
166 <213> ORGANISM: Artificial Sequence
168 <220> FEATURE:
169 <223> OTHER INFORMATION: therapeutic gene
172 <400> SEQUENCE: 12
173 gttgacattg attattgact agttattaat agtaatcaat tacggggtca ttagttcata       60
175 gcccatatat ggagttccgc gttacataac ttacggtaaa tggcccgcct ggctgaccgc      120
177 ccaacgaccc ccgcccattg acgtcaataa tgacgtatgt tcccatagta acgccaatag      180
179 ggactttcca ttgacgtcaa tgggtggagt atttacggta aactgcccac ttggcagtac      240
181 atcaagtgta tcatatgcca agtacgcccc ctattgacgt caatgacggt aaatggcccg      300
183 cctggcatta tgcccagtac atgaccttat gggactttcc tacttggcag tacatctacg      360
185 tattagtcat cgctattacc atggtgatgc ggttttggca gtacatcaat gggcgtggat      420
187 agcggtttga ctcacgggga tttccaagtc tccaccccat tgacgtcaat gggagtttgt      480
189 tttggcacca aaatcaacgg gactttccaa aatgtcgtaa caactccgcc ccattgacgc      540
191 aaatgggcgg taggcgtgta cggtgggagg tctatataag cagagctctc tggctaacta      600
193 gagaacccac tgcttactgg cttatcgaaa ttaatacgac tcactatagg gagacccaag      660
195 ctggctagcg tttaaactta agcttcacca tgggtgtact gctcacacag aggacgctgc      720
197 tcagtctggt ccttgcactc ctgtttccaa gcatggcgag catgtccaaa gggatgcatg      780
199 tggctcagcc tgcagtggtt ctggccagca gccggggtgt tgctagcttc gtgtgtgaat      840
201 atgggtcttc aggcaacgca gccgaggtcc gggtgacagt gctgcggcag gctggcagcc      900
203 agatgactga agtctgtgcc gcgacataca cagtggagga tgagttggcc ttcctggatg      960
205 attctacctg cactggcacc tccagtggaa acaaagtgaa cctcaccatc caagggttga     1020
207 gggccatgga cacggggctc tacatctgca aggtggagct catgtaccca ccaccctact     1080
209 atgtaggcat gggaaatgga acccagattt atgtcatcga tcctgaacct gcccagatt      1140
211 ctgacgaatt cgataacagt catccgtctc atccatctcc ctcgtccaat gagccccgcc     1200
213 tgtcactaca gaagccagcc ctcgaggatc tgcttttagg ctccaatgcc agcctcacat     1260
215 gcacactgag tggcctgaaa gaccccaagg gtgccacctt cacctggaac ccctccaaag  1320
217 ggaaggaacc catccagaag aatcctgagc gtgactcctg tggctgctac agtgtgtcca     1380
219 gtgtcctacc aggctgtgct gatccatgga accatgggga caccttctcc tgcacagcca     1440
221 cccaccctga atccaagagc ccgatcactg tcagcatcac caaaaccaca gagcacatcc     1500
223 cgccccaggt ccacctgctg ccgccgccgt cggaagagct ggccctcaat gagctggtga     1560
225 cactgacgtg cttggtgagg ggcttcaaac caaaagatgt gctcgtacga tggctgcaag     1620
227 ggacccagga gctaccccaa gagaagtact tgacctggga gcccctgaag gagcctgacc     1680
229 agaccaacat gtttgccgtg accagcatgc tgaggtgac agccgaagac tggaagcagg     1740
231 gggagaagtt ctcctgcatg gtgggccacg aggctctgcc catgtccttc acccagaaga     1800
233 ccatcgaccg cctggcgggt aaacccaccc acgtcaacgt gtctgtggtc atggcagagg     1860
235 tggacggcat ctgctactaa tctagagggc ccgtttaaac ccgctgatca gcctcgactg     1920
237 tgccttctag ttgccagcca tctgttgttt gcccctcccc cgtgccttcc ttgaccctgg     1980
239 aaggtgccac tcccactgtc ctttcctaat aaaatgagga aattgcatcg cattgtctga     2040
241 gtaggtgtca ttctattctg gggggtgggg tggggcagga cagcaagggg gaggattggg     2100
```

```
243 aagacaatag caggcatgct ggggatgcgg tgggctctat ggcttctgag gcggaaagaa     2160
245 ccagctgggg ctctaggggg tatccccacg cgccctgtag cggcgcatta agc            2213
248 <210> SEQ ID NO: 13
249 <211> LENGTH: 20
250 <212> TYPE: DNA
251 <213> ORGANISM: Artificial Sequence
253 <220> FEATURE:
254 <223> OTHER INFORMATION: primer
257 <400> SEQUENCE: 13
258 aagacctgaa caccgctccc                                                 20
261 <210> SEQ ID NO: 14
262 <211> LENGTH: 21
263 <212> TYPE: DNA
264 <213> ORGANISM: Artificial Sequence
266 <220> FEATURE:
267 <223> OTHER INFORMATION: primer
270 <400> SEQUENCE: 14
271 gttagaattg cctcagctct t                                               21
274 <210> SEQ ID NO: 15
275 <211> LENGTH: 23
276 <212> TYPE: DNA
277 <213> ORGANISM: Artificial Sequence
279 <220> FEATURE:
280 <223> OTHER INFORMATION: primer
283 <400> SEQUENCE: 15
284 gagcccaaat cttgtgacaa aac                                             23
287 <210> SEQ ID NO: 16
288 <211> LENGTH: 20
289 <212> TYPE: DNA
290 <213> ORGANISM: Artificial Sequence
292 <220> FEATURE:
293 <223> OTHER INFORMATION: primer
296 <400> SEQUENCE: 16
297 agcatcctcg tgcgaccgcg                                                 20
300 <210> SEQ ID NO: 17
301 <211> LENGTH: 65
302 <212> TYPE: DNA
303 <213> ORGANISM: Artificial Sequence
305 <220> FEATURE:
306 <223> OTHER INFORMATION: primer
309 <400> SEQUENCE: 17
310 ctcagtctgg tccttgcact cctgtttcca agcatggcga gcatggcaat gcacgtggcc     60
312 cagcc                                                                 65
315 <210> SEQ ID NO: 18
316 <211> LENGTH: 66
317 <212> TYPE: DNA
318 <213> ORGANISM: Artificial Sequence
320 <220> FEATURE:
321 <223> OTHER INFORMATION: primer
```

RAW SEQUENCE LISTING
PATENT APPLICATION: **US/10/581,041**

DATE: 06/21/2006
TIME: 13:40:10

Input Set : **A:\pto.da.txt**
Output Set: **N:\CRF4\06212006\J581041.raw**

```
324 <400> SEQUENCE: 18
325 gaattcgagc ccaaatcttc tgacaaaact cacacatccc caccgtcccc agcacctgaa      60
327 ctcctg                                                                66
330 <210> SEQ ID NO: 19
331 <211> LENGTH: 31
332 <212> TYPE: DNA
333 <213> ORGANISM: Artificial Sequence
335 <220> FEATURE:
336 <223> OTHER INFORMATION: primer
339 <400> SEQUENCE: 19
340 tctagaagca tcctcgtgcg accgcgagag c                                     31
343 <210> SEQ ID NO: 20
344 <211> LENGTH: 2446
345 <212> TYPE: DNA
346 <213> ORGANISM: Artificial Sequence
348 <220> FEATURE:
349 <223> OTHER INFORMATION: therapeutic gene
352 <400> SEQUENCE: 20
353 gttgacattg attattgact agttattaat agtaatcaat tacggggtca ttagttcata      60
355 gcccatatat ggagttccgc gttacataac ttacggtaaa tggcccgcct ggctgaccgc     120
357 ccaacgaccc ccgcccattg acgtcaataa tgacgtatgt tcccatagta acgccaatag     180
359 ggactttcca ttgacgtcaa tgggtggagt atttacggta aactgcccac ttggcagtac     240
361 atcaagtgta tcatatgcca agtacgcccc ctattgacgt caatgacggt aaatggcccg     300
363 cctggcatta tgcccagtac atgaccttat gggactttcc tacttggcag tacatctacg     360
365 tattagtcat cgctattacc atggtgatgc ggttttggca gtacatcaat gggcgtggat     420
367 agcggtttga ctcacgggga tttccaagtc tccacccctat tgacgtcaat gggagtttgt     480
369 tttggcacca aaatcaacgg gactttccaa aatgtcgtaa caactccgcc ccattgacgc     540
371 aaatgggcgg taggcgtgta cggtgggagg tctatataag cagagctctc tggctaacta     600
373 gagaacccac tgcttactgg cttatcgaaa ttaatacgac tcactatagg gagacccaag     660
375 ctggctagcg tttaaactta agcttcacca tgggtgtact gctcacacag aggacgctgc     720
377 tcagtctggt ccttgcactc ctgtttccaa gcatggcgag catggcaatg cacgtggccc     780
379 agcctgctgt ggtactggcc agcagccgag gcatcgccag ctttgtgtgt gagtatgcat     840
381 ctccaggcaa agccactgag gtccgggtga cagtgcttcg gcaggctgac agccaggtga     900
383 ctgaagtctg tgcggcaacc tacatgatgg ggaatgagtt gaccttccta gatgattcca     960
385 tctgcacggg cacctccagt ggaaatcaag tgaacctcac tatccaagga ctgagggcca    1020
387 tggacacggg actctacatc tgcaaggtgg agctcatgta cccaccgcca tactacctgg    1080
389 gcataggcaa cggaacccag atttatgtaa ttgatccaga accgtgccca gattctgacg    1140
391 aattcgagcc caaatcttgt gacaaaactc acacatgccc accgtgccca ggtaagccag    1200
393 cccaggcctc gccctccagc tcaaggcggg acaggtgccc tagagtagcc tgcatccagg    1260
395 gacaggcccc agccgggtgc tgacacgtcc acctccatct cttcctcagc acctgaactc    1320
397 ctggggggac cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc    1380
399 cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag    1440
401 ttcaactggt acgtggacgg cgtggaggtg cataatgcca agacaaagcc gcgggaggag    1500
403 cagtacaaca gcacgtaccg ggtggtcagc gtcctcaccg tcctgcacca ggactggctg    1560
405 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa    1620
407 accatctcca aagccaaagg tgggacccgt ggggtgcgag ggccacatgg acagaggccg    1680
409 gctcggccca ccctctgccc tgagagtgac cgctgtacca acctctgtcc tacagggcag    1740
411 ccccgagaac acacaggtgta caccctgccc ccatcccggg atgagctgac caagaaccag    1800
413 gtcagcctga cctgcctggt caaaggcttc tatcccagcg acatcgccgt ggagtgggag    1860
```

VERIFICATION SUMMARY   DATE: 06/21/2006
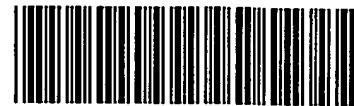PATENT APPLICATION: **US/10/581,041**   TIME: 13:40:11

Input Set : **A:\pto.da.txt**
Output Set: **N:\CRF4\06212006\J581041.raw**

L:12 M:270 C: Current Application Number differs, Replaced Current Application No
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date

Raw Sequence Listing before editing (for reference only)

IFWP

RAW SEQUENCE LISTING   DATE: 06/19/2006
PATENT APPLICATION: US/10/581,041   TIME: 11:22:13

Input Set : A:\SEQUENCE LISTING.txt
Output Set: N:\CRF4\06192006\J581041.raw

```
    4 <110> APPLICANT: CHAE, Young-Jin
    5        CHOI, Eun-Wha
    7 <120> TITLE OF INVENTION: Recombinant peptide vector comprising the gene for treatment
for
    8        autoimmune diseases
   10 <130> FILE REFERENCE: OP04-1086
C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/581,041
C--> 12 <141> CURRENT FILING DATE: 2006-05-30
   12 <160> NUMBER OF SEQ ID NOS: 23
   14 <170> SOFTWARE: KopatentIn 1.71
```

Does Not Comply
Corrected Diskette Needed

Cpg-1)

ERRORED SEQUENCES

```
  468 <210> SEQ ID NO: 23
  469 <211> LENGTH: 16
  470 <212> TYPE: DNA
  471 <213> ORGANISM: Artificial Sequence
  473 <220> FEATURE:
  474 <223> OTHER INFORMATION: Linker-2 DNA
  477 <400> SEQUENCE: 23
  478 gattatgctg agtgat                                          16
E--> 481  11
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deleted

VERIFICATION SUMMARY DATE: 06/19/2006
PATENT APPLICATION: US/10/581,041 TIME: 11:22:14

Input Set : A:\SEQUENCE LISTING.txt
Output Set: N:\CRF4\06192006\J581041.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:481 M:254 E: No. of Bases conflict, this line has no nucleotides.